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(56) Documents Cited

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(58) Field of Search

UK CL (Edition S) G2A AAR AAX, G4N NPL NPPXP

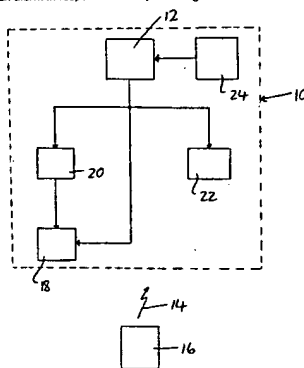
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(54) Abstract Title

Controlling the use of portable cameras

(57) Apparatus for restricting and/or prohibiting the use of a portable camera within a predetermined area, comprising a first unit 10 mounted in or on a portable camera (not shown). The unit 10 includes a receiver 12 for receiving periodic radio signals 14 from one or more transmitters 16 located remote from the camera within the predetermined area. When the receiver 12 receives a signal 14, it activates a disable module 18 which disables one or more of the functions of the camera while it is within the predetermined area. The apparatus may also include a GPS tracking system 20 for tracking the location of the camera and/or an alarm module 22 for emitting an alarm in response to receipt of a signal 14 from a transmitter 16.



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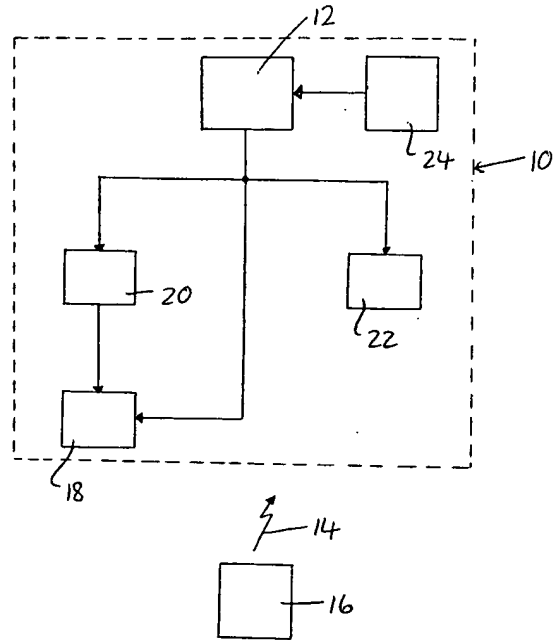


FIG. 1

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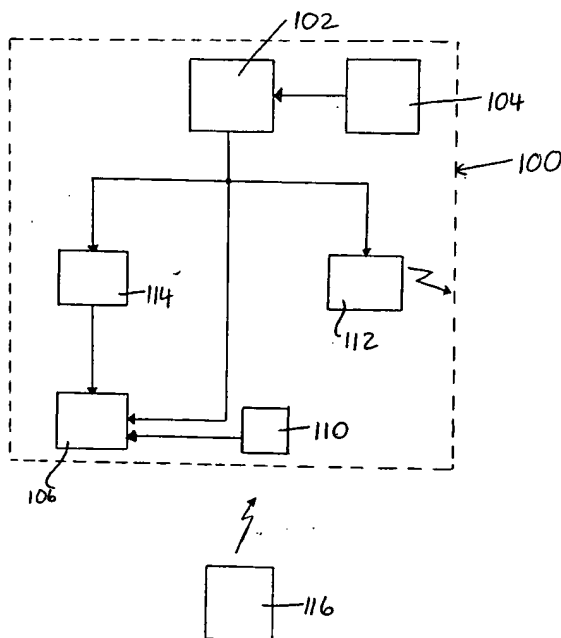


FIG. 2

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PORTABLE CAMERAS

This invention relates to portable cameras and, in particular, to controlling the use of such cameras in certain specified locations.

Recent advances in technology are such that very small portable cameras are becoming increasingly common. Cameras have been developed which are embedded in mobile telephones or watches, or which can be worn in the manner of badges or glasses.

There are many situations and locations, such as business premises, museums, cinemas, lavatories, etc., where use of cameras is necessarily restricted or prohibited. In the past, such restriction and/or prohibition has been attempted to be achieved by displaying signs indicating the restriction or prohibition on photography in a specified location, and relying on individuals to adhere to such instructions. In some buildings, cameras are confiscated on entry thereto, which was relatively effective with regard to previous generations of cameras as they were relatively large and conspicuous when carried or used.

However, with the development of very small portable cameras, as described above, it is increasingly difficult to detect them being carried or used, making restriction or prohibition of photography in specified locations difficult to enforce.

We have now devised an arrangement which overcomes the problems outlined above. In accordance with a first aspect of the present invention, there is provided apparatus for restricting and/or prohibiting use and/or carriage of a portable and/or concealable camera within a predetermined area, the apparatus comprising at least one pair of transmitter and receiver units, one of said units being mounted or mountable in or on said camera, and the other unit of said pair being remote from said camera within said predetermined area, at

and/or enable and/or disable one or more of the functions of said camera in response to a signal received from said at least one other unit.

The first aspect of the invention extends to a method of restricting and/or prohibiting use and/or carriage of a portable and/or concealable camera within a predetermined area, the method comprising the steps of providing at least one first transmitter and/or receiver unit in or on a camera, providing at least one second transmitter and/or receiver unit remote from said camera, within said predetermined area and actuating an alarm and/or enabling and/or disabling one or more of the functions of said camera in response to a signal received by one of said units from the at least one other unit.

In one embodiment of the first aspect of the invention, the portable camera may include a transmitter unit which always transmits intermittent signals, for example low power radio signals, and when those signals are detected by one of a plurality of receivers located around and/or within an area where cameras are prohibited, an alarm may be actuated to alert security staff of the presence and approximate location of the concealed camera.

In another embodiment of the first aspect of the invention, the camera emits a signal only if it is used to take a picture. Thus, in locations where a camera can be carried provided it is not used, security staff can detect such use and take appropriate action.

In yet another, more preferred, embodiment of the first aspect of the invention, the portable camera includes a receiver unit which is linked to means for disabling one or more functions of the camera. A number of (preferably low power) possibly radio transmitters are located around and/or within an area where use of cameras is restricted or prohibited. The transmitters emit periodic signals which, when received by the portable camera unit, cause one or more of the functions of the camera to be disabled.

entry tickets or passes, or can be rented or sold to people on entry to, for example, a theme park. A plurality of transmitters located within the park transmit periodic signals to enable such cameras but, once the camera is removed from the park, it becomes useless because it is out of range of the necessary actuation signals, thereby providing a greater incentive for people to return the cameras when they leave the park.

In yet another embodiment of the first aspect of the invention, the apparatus may include means for tracking the location of a portable camera within a predetermined area by, for example, detecting signals periodically transmitted by a unit within the camera, and for transmitting a signal to disable one or more of the functions of the camera as it enters a restricted zone. The apparatus may then continue to track the camera until it leaves the restricted zone and transmit a re-enabling signal accordingly.

In accordance with a second aspect of the invention, there is provided apparatus for restricting and/or prohibiting use of a portable or concealable camera within a predetermined area, the apparatus comprising programmable means for disabling and/or enabling, selectively or otherwise, one or more of the functions of said camera in response to data received from external programming means.

In one embodiment of the second aspect of the invention, the programmable means includes a contact device reader for receiving a contact device, such as a smart card or the like, from which data is transferred to enable and/or disable one or more of the camera's functions. The camera's functions may be enabled by default and disabled, selectively or otherwise, in response to data received from the external programming means. Alternatively, some or all of the camera's functions may be disabled by default, and enabled, selectively or otherwise, in response to data received from the external programming means.

photography is permitted in an area, but flash photography is not, then the apparatus could just be arranged to disable the flash function of the camera. If, however, photography is prohibited within an area, then the apparatus could be arranged to disable the camera altogether while it is within that area.

Thus, for example, the transmitters may be arranged to transmit a signal once per second and, in response to receipt of such a signal, the camera unit may be arranged to disable one or more of the functions of the camera for, say, two seconds, such that those functions of the camera remain disabled until shortly after the camera is removed from within the predetermined area. Alternatively, the apparatus may be arranged to disable one or more of the functions of the camera until it receives another signal (possibly after the camera is removed from the restricted area) to re-enable it.

In general, the apparatus and method of the first aspect of the present invention provides a way of allowing cameras to be brought into predetermined areas, but either alerting staff to their presence or restricting or preventing their use whilst within that area. It is intended to provide a protocol whereby all portable or concealable cameras include means for actuating an alarm and/or disabling the or more of its functions in restricted areas.

In yet another embodiment of the first aspect of the invention, the portable camera may be normally disabled, and enabled in response to a signal received from one or more transmitters in or around a predetermined area. Thus, such transmitters could be arranged to emit periodic signals to enable the camera whilst it is within the predetermined area, or the apparatus may be arranged to transmit an enabling signal on entry to the predetermined area and a disabling signal upon exit therefrom. In either case, the camera is arranged to be enabled or active in a limited area or number of locations.

In one specific application, the apparatus may comprise

In a specific exemplary embodiment of the second aspect of the invention, the programmable means may be arranged to receive data indicative of one or more specific areas within said predetermined location together with camera functions permitted to be enabled in the or each said area, the apparatus comprising means for determining the location of said camera within said predetermined area and enabling and/or disabling one or more of the functions thereof according to the area in which it is located.

In a preferred embodiment of the second aspect of the present invention, the apparatus further comprises means for actuating an alarm in the event that unauthorised camera functions are operated within said predetermined area. The apparatus may itself be equipped with an alarm, or it may transmit a signal for receipt by a remote unit within the predetermined area, in response to which the remote unit actuates an alarm.

The second aspect of the present invention extends to a method of restricting or prohibiting use of a portable or concealable camera within a predetermined area, corresponding to the apparatus defined above.

It will be understood that all references herein to "cameras" are intended to encompass "image capturing devices" generally.

Embodiments of the present invention will now be described by way of examples only and with reference to the accompanying drawings, in which:

FIGURE 1 is a schematic block diagram illustrating the various possible functions of apparatus according to a first specific embodiment of the invention; and

FIGURE 2 is a schematic block diagram illustrating the various possible functions of apparatus according to a second specific embodiment of the invention.

Referring to Figure 1, apparatus according to one

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housed within a portable camera (not shown). The unit 10 includes a receiver 12 for receiving low power, short range radio signals 14 emitted by one or more remote transmitter units 16.

5 The first unit 10 further comprises a disable module 18 which, then actuated, is arranged to disable one or more functions of the portable camera, possibly selectively according to the signal it receives to actuate it. In its simplest form, however, the receiver 12 may be arranged to
10 transmit an activating signal directly to the disable module 18 when one or more signals 14 are received from the remote transmitter unit 16, in response to which the disable module 18 disables the camera altogether or one specific function thereof, such as the flash.

15 In a more elaborate embodiment, the unit 10 may include a position sensing module 20 which, when actuated, tracks the location of the portable camera. (Over a large area, such as for example a university campus, a GPS module may provide sufficiently accurate location information to track the
20 position of a portable camera). In this embodiment, the signals 14 transmitted by the remote transmitter unit include information regarding the areas in which photography is restricted or prohibited. The signals 14 are received and transmitted to the GPS module 20 which tracks the location of
25 the portable camera. When the camera enters a restricted zone, the position sensing module 20 transmits a signal to the disable module 18 to disable one or more of the functions of the camera accordingly. The GPS module 20 continues to track the camera until it leaves the restricted zone, and then sends
30 another signal to the module 18 to re-enable the functions of the camera.

The unit 10 may additionally or alternatively include an alarm unit 22 which is actuated in response to receipt of one or more signals 14 from the remote transmitter unit 16, to
35 emit an audible and/or visible alarm signal to alert security

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staff of the presence of a portable camera within a restricted area.

The unit 10 may further include an override unit 24 which can be used to override some or all of the disablements
5 and/or alarm functions of the unit 10 upon entry of, for example, an authorised security code or insertion of a security card or key.

Referring to Figure 2 of the drawings, apparatus according to another specific embodiment of the invention
10 comprises a unit 100 housed within a portable camera (not shown). The unit 100 includes a smart card reader 102 for receiving a smart card 104 on which is stored data relating to permitted (or otherwise) camera functions within a predetermined area.

15 In this embodiment, all of the portable camera functions are normally enabled. Thus, the unit 100 further comprises a disable module 106 which, when actuated, is arranged to disable one or more of the functions of the portable camera, in accordance with data stored on the smart
20 card 104. Thus, in its simplest form, in a predetermined area where photography is not permitted, when the smart card 104 is inserted into or swiped through the card reader 102, the disable module 106 disables all of the camera's functions. It may be necessary to insert or swipe another smart card upon
25 exit from the predetermined area in order to re-enable all of the camera's functions. Alternatively, the unit 100 may include a receiver 110 which, in response to receipt of a signal transmitted by a remote transmitter 116 at the exit to the predetermined area, automatically re-enables all of the
30 camera's functions.

In an alternative embodiment, the data read from the smart card may only cause some of the functions of the camera, e.g. the flash, to be disabled in accordance with specific regulations defined for a particular area.

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transmitting a signal in the event that the camera is used within a predetermined area. The signal is received by a receiver within the area, which actuates an alarm in the event that the camera has not been properly programmed.

5 In another embodiment of the invention, the data read from the smart card 104 defines specific areas within the predetermined area together with permitted (or non-permitted) camera functions in those areas. The unit 100 comprises a position detector 114 for tracking the position of the camera
10 within the predetermined area, the disable module 106 being arranged to selectively disable (and re-enable) functions of the camera according to its location within the predetermined area.

Thus, in a specific embodiment of the second aspect of
15 the invention, the apparatus (or the camera) is provided with a slot for reading magnetic stripe cards (like a slot for swiping credit cards). The cards act as controlling units. The apparatus is designed to activate or deactivate the functions of the camera by swiping cards having different
20 configurations written into their magnetic stripes. The magnetic stripe of a card may also contain a code that will lock the camera functions and prevent any further changes to its configuration unless (a) subsequent cards have a matching code or (b) another card with the same code is used to unlock
25 it.

For example, a museum may implement a policy that only cameras of the type described above may be carried into the museum's galleries and that they must be swiped on entry to
30 disable functions such as flash photography. All other cameras must be surrendered on entry. As well as disabling flash, swiping the permitted cameras might limit the resolution of the pictures that can be taken within the gallery. If a visitor wishes to take more detailed pictures, he or she can purchase a photo license card. When swiped through the slot in the
35 camera, the photo license card will re-enable full resolution

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photography for one photograph only. Depending on the fee paid, the card may be used one or more times. On exit from the gallery, the visitor's camera is swiped again to re-enable the original functions.

5 Many variations on this these are possible, for example, the camera could be programmed on entry to the museum (by electrical contact with a programming device) in order to install a simple table of museum locations and the functions to be enabled at each. The camera could then control its own
10 capabilities by tracking its position using a built-in position sensor (which could function by any one of several known techniques).

Specific embodiment of the invention have been described above by way of examples only, and it will be
15 apparent to a person skilled in the art that modifications and variations can be made to the described embodiments without departing from the scope of the invention as defined in the appended claims.

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CLAIMS

1. Apparatus for restricting and/or prohibiting use and/or carriage of a portable and/or concealable camera within a predetermined area, the apparatus comprising at least one pair of transmitter and receiver units; one of said pair of units being mounted or mountable in or on said camera, and the other unit of said pair being remote from said camera, within said predetermined area, at least one of said units being arranged to actuate an alarm and/or enable and/or disable one or more of the functions of said camera in response to a signal received from said at least one other unit.
2. Apparatus according to claim 1, comprising a transmitter unit located in or on said camera for transmitting one or more signals, and at least one receiver unit located remote from said camera within said predetermined area, said receiver unit being arranged to actuate an audible and/or visible alarm in response to receipt of one or more signals from said transmitter unit.
3. Apparatus according to claim 1, comprising a receiver unit located in or on said camera, and one or more transmitter units located remote from said camera within said predetermined area, the one or more transmitter units being arranged to transmit one or more first signals for receipt by said receiver unit when said camera is within said predetermined area, said receiver unit being linked or connected to means for disabling one or more of the functions of said camera in response to receipt of one or more signals from the one or more transmitter units.
4. Apparatus according to claim 3, wherein said one or more transmitter units transmit periodic signals, receipt of each

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- of which causes the one or more functions of the camera to be disabled for a predetermined period of time or for periods as specified in the transmission.
5. Apparatus according to claim 3, wherein said receiver unit is linked or connected to means for re-enabling said one or more functions of said camera in response to receipt of one or more second signals transmitted by said one or more transmitter units.
 6. Apparatus according to claim 3, including means for re-enabling said one or more functions of said camera in response to the invention into the camera of a license card or in response to data transferred by contact with a licensing device.
 7. Apparatus according to claim 1, comprising a first unit located in or on the camera and including a receiver and means for enabling and/or disabling one or more of the functions of the camera, and at least one second unit located remote from the camera within a predetermined area, said second unit including a transmitter for transmitting signals in response to receipt of which the first unit is arranged to enable and/or disable one or more of the functions of the camera.
 8. Apparatus according to claim 7, wherein said transmitter is arranged to transmit periodic signals, in response to receipt of which the first unit is arranged to enable one or more of the functions of the camera.
 9. Apparatus according to claim 7, wherein the transmitter is arranged to transmit a first signal, in response to which the first unit is arranged to enable one or more of the functions of the camera, and a second signal, in response to

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- which the first unit is arranged to return the camera to its disabled state.
10. Apparatus according to any one of claims 3 to 6, wherein the receiver unit is linked or connected to means for tracking the location of the camera and the one or more first signals emitted by the one or more transmitter units include information regarding one or more zones within said predetermined areas in which use of said camera is restricted or prohibited, said receiver unit being arranged to receive and decode said one or more first signals and, when said tracking means determines that said camera has entered the one or more of said zones, is arranged to disable one or more of the functions of the camera.
 11. Apparatus according to claim 10, wherein said tracking means is arranged to continue to track the location of said camera, and the receiver unit, when the tracking means determines that the camera has left said zone, is arranged to re-enable said one or more functions of the camera.
 12. Apparatus for restricting and/or prohibiting use and/or carriage of a portable and/or concealable camera, the apparatus being substantially as herein described with reference to the accompanying drawing.
 13. A method of restricting and/or prohibiting use and/or carriage of a portable and/or concealable camera within a predetermined area, the method comprising the steps of providing at least one first transmitter and/or receiver unit in or on said camera, providing at least one second transmitter and/or receiver unit remote from said camera within said predetermined area, and activating an alarm and/or enabling and/or disabling one or more of the functions of said camera in response to a signal received by one of said units from the

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- at least one other unit.
14. A method of restricting and/or prohibiting use and/or carriage of a portable and/or concealable camera within a predetermined area, the method being substantially as herein described with reference to the accompanying drawing.
 15. Apparatus for restricting and/or prohibiting use of a portable or concealable camera within a predetermined area, the apparatus comprises programmable means for disabling and/or enabling, selectively or otherwise, one or more of the functions of the said camera in response to data received from external programming means.
 16. Apparatus according to claim 15, wherein said programmable means includes a contact device reader for receiving a contact device from which data is transferred to enable and/or disable one or more of the cameras functions.
 17. Apparatus according to claim 15 or claim 16, wherein the cameras functions are enabled by default, and disabled, selectively or otherwise, in response to data received from the external programming means.
 18. Apparatus according to claim 15 or claim 16, wherein some or all of the cameras functions are disabled by fault, and enabled, selectively or otherwise, in response to data received from the external programming means.
 19. Apparatus according to any one of claims 15 to 18, wherein said programmable means is arranged to receive data indicative of one or more specific areas within said predetermined location, together with camera functions permitted to be enabled in the or each said area, the apparatus

comprising means for determining the location of said camera within said predetermined area and enabling and/or disabling one or more of the functions thereof according to the area in which it is located.

5 20. Apparatus according to any one of claims 15 to 19, comprising means for actuating an alarm in the event that unauthorised camera functions are operated within said predetermined area.

21. Apparatus for restricting and/or prohibiting use of a
10 portable or concealable camera within a predetermined area, the apparatus being substantially as herein described with reference to the accompanying drawings.



Application No: GB 0102728.3
Claims searched: 1-14

Examiner: Richard Pannett
Date of search: 28 September 2001

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Patents Act 1977

Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): G4N (NPL, NPPXP); G2A (AAR, AAX)

Int Cl (Ed.7): G03B 29/00; G08B 21/00

Other: Online: EPODOC, WPI and JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2286279 A (ROBERTS-CARLSON) See entire document.	1,2,13
A	EP 0881850 A2 (OKI) See for example: abstract; column 1 line 51 to column 2 line 3; figures 1-4.	1,13
A	EP 0830046 A2 (NEC) See for example: abstract; column 1 line 44 to column 2 line 7.	1,3,7,13
A	EP 0680859 A2 (DETEMOBIL) See for example: abstract; figure 1.	1,13
X	EP 0505266 A1 (TELEDIFFUSION DE FRANCE) See for example: abstract; figure 1.	1,3,5,7,13
A	WO 01/43483 A1 (TELEFONAKTEBOLAGET LM ERICSON) See for example: abstract; page 2 line 1 to page 3 line 17; figure 1.	1,3,7,13
A	WO 97/49255 A1 (NOKIA) See for example: abstract; page 2 lines 13-23; page 3 lines 4-15; figure 1.	1,3,7,13
A	US 5342072 (PRASAD) See for example: abstract; column 1 lines 46-56; column 4 lines 35-50; figures 3 and 4.	1,3,13

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category
A Document indicating technological background and/or state of the art
P Document published on or after the declared priority date but before the filing date of this invention.



Application No: GB 0102728.3
Claims searched: 1-14

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Examiner: Richard Pannett
Date of search: 28 September 2001

Category	Identity of document and relevant passage	Relevant to claims
A	US 4743930 (SATO) See for example: abstract; column 1 lines 46-53; column 5 lines 51-55.	1,13

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category
A Document indicating technological background and/or state of the art
P Document published on or after the declared priority date but before the filing date of this invention.